Appendix D: Research and Practice in Other States

Research and Practices of Other States

- In the 2005 report, *The Expectations Gap: A 50-State Review of High School Graduation Requirements*, published by Achieve, the overall statement: "Achieve's analysis reveals that no state *requires* every student to take a college- and work-preparatory curriculum to earn a diploma. In *every* state, a student can take all of the courses necessary to graduate and still leave high school unprepared for work and postsecondary education" defines the challenge for Kentucky and the other 49 states.
- Appendix E is a graphic that displays Kentucky's minimum high school graduation requirements and the high school graduation requirements of other states noted for increasing the rigor required for high school graduation.
- In *The Expectations Gap*, Achieve makes recommendations for states and policy leaders to consider as they examine strategies to close the expectations gap and prepare every student to be successful in life:
    - **Require all students to take a common college and work-preparatory curriculum in math and English.** Arkansas, Indiana and Texas are leading the way, requiring students to opt out of a college- and work-preparatory curriculum, rather than opt in.
    - **Pay attention to content, not just course titles.** State standards must clearly describe the level, rigor and content expected of required courses to ensure that educators have a common understanding of what is essential for students to learn.
    - **Align academic standards in high school with the knowledge and skills required for college and workplace success.** States must work with postsecondary officials and employers to define the knowledge and skills necessary for graduates to successfully perform in college and the workplace without the need for remediation.
    - **Provide clear guidance on essential courses and allow flexibility for instructional approaches.** To ensure greater consistency and equity, states should articulate what is most important for students to learn and give local educators the flexibility to decide upon specific approaches for delivering that content.
    - **Encourage students to go beyond the core.** States should encourage all students — particularly low-achieving students — to pursue accelerated options for earning postsecondary credit while in high school.
    - **Monitor results.** States should track student achievement from K–12 through postsecondary education and use data to help improve the rigor of course offerings and instruction in high school.
- In Texas, all high school students are placed in the Texas Recommended High School Program unless their parents choose to opt out of the course sequence. This default course of study includes three years of math through Algebra II, four

years of grade level English, three years of science, four years of social studies, and two years of a foreign language.

- Indiana has also made progress in aligning school and postsecondary standards. The Indiana Education Roundtable has recommended that, beginning with the graduating class of 2011, all students should be required to take the "Core 40"." It is important to note, however, that students have the option to formally opt out of that track. The Indiana Core 40 includes three years of math through Algebra II, four years of English, three years of science, and three years of social studies. The Roundtable has also recommended that completion of the Core 40 is required for admission to state four-year institutions, encouraged for admission to two-year institutions and required for state financial aid eligibility at four-year institutions.
- ACT research has documented the benefits of taking a core college-preparatory curriculum for college readiness and success—four years of English and three years each of math, science, and social science.
- ADP recommends that a rigorous high school curriculum include Advanced Placement courses, four years of English and math that covers geometry, advanced algebra and data analysis and statistics. Only Texas, Indiana and Arkansas require students to take math courses through advanced algebra (e.g. Algebra II).
- The National Governors Association (NGA) and Achieve Inc. hosted the education summit that brought together 45 governors, Congressional leaders, Education Secretary Margaret Spellings, business executives including Microsoft's Bill Gates, and prominent K-12 and higher education leaders to discuss how to bring about education reform. An ambitious action agenda was developed for state leaders including that all students take a rigorous college-prep curriculum – with course requirements of four years of rigorous English and math that covers Geometry, Algebra II, and data analysis and statistics.

Mathematics

- Research conducted by the American Diploma project found that workers in the highest-paying jobs also take more complex math. More than one -half of workers in the highest-paid tier of jobs had two or more credits at the algebra II level or higher,8 compared with 27 percent of middle –tier workers and 20 percent of bottom-tier workers. The research also estimates that three-fourths of those in the top-paying 25 percent of jobs have at least one yearlong high school credit in Algebra II and more than 85 percent have taken Geometry.
- The chart found in Appendix F, acquired from Achieve, depicts Kentucky as requiring three credits in mathematics with two specific courses defined for high school graduation (Algebra I and Geometry). Arkansas, Indiana and Texas require those two courses and, in addition, require Algebra II. Arkansas requires four courses in mathematics (Algebra I, Geometry, Algebra II, and a course beyond Algebra II).
- Achieve has provided recommendations for states around mathematics graduation requirements. Kentucky's graduation requirements for mathematics do not

currently require a separate credit in the area of data interpretation, statistics and probability. Achieve and the American Diploma Project benchmarks indicate that graduates must be able to interpret, analyze, and describe data quickly and accurately. To be aligned to what employers and postsecondary institutions expect from students, graduates should be able to make predictions and develop and evaluate inferences from these data.

- The Council on Postsecondary Education's Mathematics Alignment Team has published standards that should be met by K-12 educators and institutions to reduce or eliminate the need for remediation when students enter postsecondary education. The standards for mathematics include:
    - All students prepared for Algebra I by ninth (9^{th}) grade
    - Require all students to take a rigorous mathematics course every year they are in high school. Taking mathematics every year of high school reinforces and helps students remember what they have learned. For many students, it is better to spread the current three years of mathematics over four years to learn concepts more thoroughly.
    - Distribute to high school teachers the description of Algebra II, part of the Pre-College Curriculum, prepared by the KDE Algebra II Task Force. Include it in the KDE Program of Studies. High school teachers need to know what they are expected to teach, high school students need to know what they are expected to learn, and postsecondary faculty need to know what competencies courses listed on a high school transcript indicate.

English Language Arts

- Currently, in Kentucky, the four courses (English I-IV) must be taken in sequence. Achieve notes that most states "do not convey a four-year progression of English knowledge and skills culminating in college readiness by the end of 12th grade. The result is a fuzzy picture of what high school students are expected to learn in English. Contrast this with the vivid picture employers and colleges paint of the importance of reading, writing and communicating— and the mismatch becomes clear."
- Through a review of other states' English/Language Arts requirements, some states have specified a close alignment to what colleges and employers expect be taught and some even require an additional credit (i.e. Speech Communications).
- The graphic in Appendix G, from Achieve, identifies states that specify which English/Language Arts courses students should take and states that specify only the number of courses students should take.
- The American Diploma Project has found that while strong preparation in English language arts provides an edge in the labor market, but the advantages are subtler than for math. The study went on to establish the conclusion that all students, regardless of their eventual employment, tend to complete four years of English of sufficient rigor that it is at least at the regular, on-grade level.

- ADP also found that the quantity of English courses among workers does not vary significantly by employment tier. In each employment tier, two-thirds of workers took English 12, and six in ten took at least four credits in survey English. However, the study did find that the quality of English course taking does matter. Taking below-average English or functional/basic English increases the likelihood of being employed in a lowpaid or low-skilled job. Honors English and elective courses, such as composition, literature, or speech, may provide a slight labor market advantage, but most students who took a solid course load of regular survey English had sufficient access to good jobs.
- The Council on Postsecondary Education has established standards by which to reduce or eliminate the need for remediation as students enter postsecondary education. In terms of English/Language Arts, the recommendations center on:
    - Expecting students to demonstrate competence in several kinds of writing
    - Preparing students to write for a variety of audiences and purposes.
    - Providing students the opportunity to practice using source materials to pose and support an argument in expository form, including performance scores for writing portfolio on student transcripts, and teaching reading, writing, oral communication, active listening, and media and technology literacy at all levels of the P-12 system.

Science

- Currently, Kentucky requires three credits in Science that include earth/space science, life science, and physical science. Kentucky's pre-college curriculum also specifies credits in earth/space, life and physical science but at least one must be a laboratory course.
- The State Scholars graduation requirements (course of study) include three years of science defined as biology, chemistry and physics.
- Indiana's Core 40 and Academic Honor Diploma specify that graduates must have credits in biology, chemistry, and physics.
- Virginia requires that 4 credits must be earned in science with one credit to include laboratory science (for Advanced Diploma).

Foreign Language

- The study of a foreign language is a more common requirement for college admissions than for high school graduation.
- Kentucky currently allows students the opportunity to choose the Pre-College curriculum path with two credits of a foreign language or demonstrated competency being required.

Appendix D: Research and Practice in Other States

- North Carolina provides students the option of four diploma tracks with two credits in foreign language required for students in the college and university preparatory track .
- South Carolina gives students the option of receiving one credit in foreign language or one in career and technology education (depending on their postsecondary path).